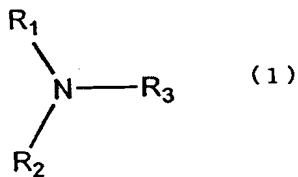


REMARKS

As recited in above-amended Claim 1, the active invention is a catalyst for producing a rigid polyurethane foam by means of at least one blowing agent selected from the group consisting of 1,1,1,3,3-pentafluoropropane (HFC-245fa), 1,1,1,3,3-pentafluorobutane (HFC-365mfc) and a low boiling point hydrocarbon, which comprises an amine compound of the following formula (1):



wherein each of R₁, R₂ and R₃ which are independent of one another, is a C₁₋₂₀ alkyl group, and at least one amine compound selected from the group consisting of triethylenediamine, N,N,N',N'-tetramethyl-1,6-hexanediamine and N,N-dimethylcyclohexylamine.

Applicants have discovered that the combination of the above amine compound of formula (1) with the above at least one amine compound, produces a polyurethane foam that is superior to one using either amine component alone as a catalyst. This is evidenced by the comparative data in the specification, wherein Examples 1-12 are according to the presently-claimed invention, and Comparative Examples 1-14 are not, the only difference between the Examples and Comparative Examples being the catalyst used. The data is shown in Tables 2, 4 and 6, at pages 58-59, 62, and 67, respectively. As described at page 68, lines 14-16, in each Example, a rigid urethane foam excellent in flowability, adhesive strength and dimensional stability, was obtained. For Comparative Examples 1-4 and 8-11, which used only the amine compound of formula (1) as the catalyst, large amounts of the catalyst were required, and the foams were inferior in flowability and dimensional stability, as described at page 68, lines 17-23. For Comparative Examples 5-7 and 12-14, which used only one of said

at least one amine compound as the catalyst, the foams were inferior in flowability, adhesive strength and dimensional stability, as described at the paragraph bridging pages 68 and 69. Similar comparative data has also been described, but using a different blowing agent. See Tables 8, 10 and 12, and the descriptions of Examples 25-48, and Comparative Examples 30-43, in the specification at page 81, lines 1-26.

Neither the presently-claimed invention, nor the above-discussed superior results, are disclosed or suggested by the applied prior art.

The rejection of Claims 1-4 under 35 U.S.C. § 102(b) as anticipated by U.S. 4,910,230 (Tamano et al), is respectfully traversed. Tamano et al discloses a fine-cell rigid polyurethane foam prepared using an amine catalyst comprising triethylene diamine, various other required amines, and formic acid (column 3, lines 27-35). Tamano et al discloses further that a known tertiary amine catalyst, such as triethylamine and dimethylcyclohexylamine may be used as a co-catalyst (column 4, line 48ff). However, Tamano et al discloses no examples of their triethylene diamine with a known tertiary amine co-catalyst, such as triethylamine. As stated in *In re Arkley*, 455 F.2d 586, 590, 172 USPQ 524, 526 (CCPA 1972):

[R]ejections under 35 U.S.C. 102 are proper only when the claimed subject matter is identically disclosed or described in "the prior art." Thus, for the instant rejection under 35 U.S.C. [102(b)] to have been proper, the . . . reference must clearly and unequivocally disclose the claimed [subject matter] or direct those skilled in the art to the [subject matter] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference. Such picking and choosing may be entirely proper in the making of a 103, obviousness rejection, where the applicant must be afforded an opportunity to rebut with objective evidence any inference of obviousness which may arise from the similarity of the subject matter which he claims to the prior art, but it has no place in the making of a 102, anticipation rejection.

At best, Tamano et al is available under 35 U.S.C. § 103(a). But, as discussed above, Tamano et al could not have predicted the superior results obtained with the presently claimed catalyst.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 under 35 U.S.C. § 102(b) as anticipated by U.S.

5,455,283 (Green et al), is respectfully traversed. Green et al discloses a closed cell rigid polyisocyanate based foam prepared with a tertiary amine ether blow catalyst (column 1, lines 11-18). The only tertiary amine ether blow catalysts disclosed have a particular formula (column 3, line 55), which is a diamine having an ether group therein. Green et al further discloses that other catalysts may be present, including tertiary amines such as triethylamine, triethylenediamine, and tributylamine (column 11, line 31ff). However, Green et al discloses no particular examples of a combination of amines within the terms of the present claims. Green et al, like Tamano et al, *supra*, fails to meet the *Arkley* standards, *supra*. Nor could one skilled in the art have predicted the above-discussed superior results from the disclosure of Green et al.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 under 35 U.S.C. § 102(e) as anticipated by U.S.

6,777,456 (Kiso et al), is respectfully traversed. Kiso et al is not prior art herein because the inventive entity is identical to the present inventive entity, and Kiso et al is not available under 35 U.S.C. § 102(b). Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 under 35 U.S.C. § 102(e) as anticipated by U.S.

6,723,819 (Masuda et al), is respectfully traversed. Masuda et al discloses polyurethane resins formed in the presence of a particular amine catalyst selected from amine catalysts of particular formulae (1)-(3) and (5)-(7) (wherein compounds of formulae (5) and (6) are used in combination), none of which amine catalysts are within the terms of the amines of the present claims. Masuda et al additionally discloses that other catalysts may be used in combination with their inventive catalysts, such as conventional tertiary amines (column 10,

line 61ff), although no amines within the terms of the presently-required amines of Claim 1 are described therein (column 11, line 7ff). Masuda et al neither discloses nor otherwise suggests the presently-claimed invention. Accordingly, it is respectfully requested that the rejection be withdrawn.

The rejection of Claims 1-4 under the judicially created doctrine of obviousness-type double patenting over Claims 1-17 of U.S. 6,596,663 (Tamano et al '663), is respectfully traversed. The claims of Tamano et al '663 are drawn to, or recite, a catalyst composition of amine compounds of a formula (1) and formula (2), respectively. None of these amines overlap or otherwise suggest any of the amines within the terms of Claim 1 herein. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 under the judicially created doctrine of obviousness-type double patenting over Claims 1-11 of Masuda et al, is respectfully traversed. The claims of Masuda et al are drawn to a method of producing a polyurethane resin, in the presence of a catalyst as described above with regard to the prior art rejection over Masuda et al. The catalyst of the present claims is neither disclosed nor suggested by the claims of Masuda et al. Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 1-4 under the judicially created doctrine of obviousness-type double patenting over Claims 1-14 of Kiso et al, is respectfully traversed. The claims of Kiso et al are drawn to a method for producing a rigid polyurethane foam in the presence of an amine catalyst, at least one amine compound having at least one substituent selected from the group consisting of a hydroxyl group, a primary amino group, and a secondary amino group in its molecule, or N-(2-dimethylaminoethyl)-N'-methylpiperazine. The catalyst of Kiso et al's claims does not overlap or otherwise suggest the amine compounds recited in present Claim 1. Accordingly, it is respectfully requested that this rejection be withdrawn.

The provisional rejections of Claims 1-4 under the judicially created doctrine of obviousness-type double patenting over Claims 10-13 of co-pending Application No. 10/284,463 ('463 application); Claims 1-27 of co-pending Application No. 10/757,422 ('422 application); Claims 23 and 29-33 of co-pending Application No. 10/780,669 ('669 application); and Claims 1-12 of co-pending Application No. 10/802,029 ('029 application), are all respectfully traversed.

Claims 10-13 of the '463 application are drawn to a catalyst for producing polyurethane consisting essentially of a mixture of a particular tertiary amine and a particular saturated dicarboxylic acid.

Claims 13-27 (Claims 1-12 having been canceled) of the '422 application are drawn to a catalyst for producing a polyurethane resin containing: a particular diamine, or a particular heterocyclic amine, or a mixture of a different, particular heterocyclic aromatic amine and a particular aliphatic amine, or a particular urea derivative alone or combined with another urea derivative.

Claims 23 and 29-33 of the '669 application are drawn to a method for producing a rigid polyurethane foam in the presence of an amine catalyst selected from a Markush group of amines.

Claims 1-12 of the '029 application are drawn to a catalyst composition for producing a polyurethane resin comprising a particular metal complex catalyst and at least one of a particular bicyclic tertiary amine, a compound having a cumulative double bond, and a particular quaternary ammonium salt; and a method of producing a polyurethane resin using the catalyst composition.

None of the above sets of claims discloses or suggests the presently-claimed invention. In addition, to the extent any of the provisional rejections applies to the claims as above-amended, the Examiner is respectfully requested to hold the rejection in abeyance until

the present claims are found to be allowable but for these rejections. If, at that time, the copending application has not been allowed, then the present application should be allowed, and a non-provisional double patenting rejection made in the other application, if applicable. See M.P.E.P. 822.01. (Applicants do not concede that any such rejection would be applicable.)

For all the above reasons, it is respectfully requested that the provisional rejections be held in abeyance, if not withdrawn.

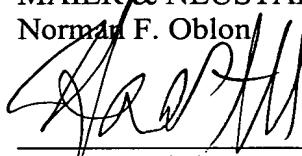
The Examiner has relied on Kiso et al, Masuda et al, and Tamano et al '663, but has not listed them on a Form PTO-892. The Examiner is respectfully requested to make these references of record in the next Office communication.

All of the presently active claims in this application are now believed to be in immediate condition for allowance. The Examiner is respectfully requested to rejoin non-elected method claims of equal scope, and in the absence of further grounds of rejection, pass this application to issue with all active and rejoined claims.

Respectfully submitted,

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